

Advanced Acoustic Blankets for Improved Aircraft Interior Noise Reduction, Phase II

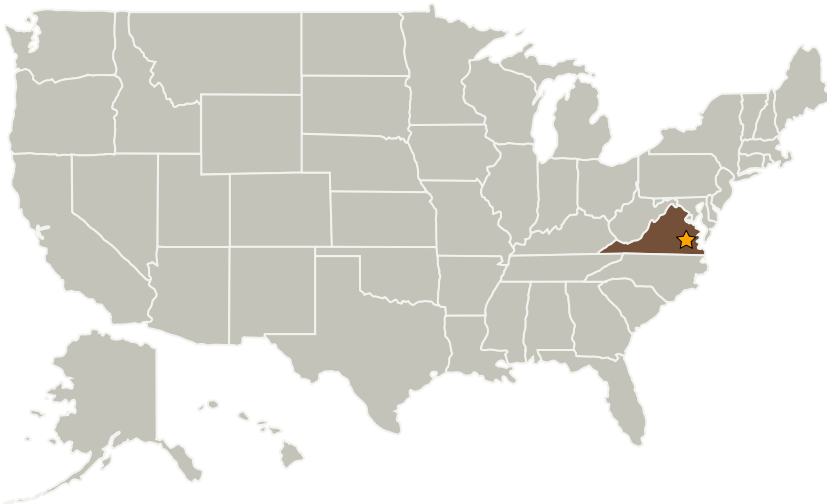
Completed Technology Project (2005 - 2007)



Project Introduction

The objective of the proposed Phase II research effort is to develop heterogeneous (HG) blankets for improved sound reduction in aircraft structures. Phase I successfully demonstrated the use of HG blankets for sound transmission suppression and the applicability of the technology to aircraft interior noise control perpetuating a license agreement with a major U.S. Fortune 100 company to aggressively and expeditiously pursue product commercialization. The highest performing HG blanket resulted in ~5 dB reduction in radiated power from an aircraft test panel. Reductions are broadband with an effective frequency range from approximately 100 to 1000 Hz resulting in decreased vibration and radiated acoustic levels across this range. The small 6-10% weight has acoustic benefits far greater than standard mass law effects. In Phase II attachment, temperature, and installation effects will be studied. Additionally, analytical design tools will be developed to automate the design process for practicing engineers making it possible to work from basic concepts and application requirements/specifications to achieve a final product which can be readily manufactured. Together the proven design concepts of Phase I and those proposed in Phase II represent the future in aircraft insulation in terms of acoustic performance, cost, weight, airframe integration, and passenger safety.

Primary U.S. Work Locations and Key Partners



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
SMD Corporation	Supporting Organization	Industry	Virginia Beach, Virginia

Primary U.S. Work Locations

Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX14 Thermal Management Systems
 - └ TX14.1 Cryogenic Systems
 - └ TX14.1.3 Thermal Conditioning for Sensors, Instruments, and High Efficiency Electric Motors